Gender Differences in Relationships Between Personality and Career Attribute Priority

Keith L. Whittingham
Rollins College

The relationship between personality and vocational choice have long been established. More recently, researchers have observed gender differences in some basic constructs of vocational attributes. In this study, we investigate the relationships between scores on a personality assessment instrument and relative priority ascribed to various career attributes in 790 subjects. Multivariate analysis confirmed significant relationships between personality factors and career attribute priority. Subsequent analysis performed on gender-based sample partitions showed notable distinctions in the specific relationships. The emerging personality-directed motivation traits and their gender distinctions may aid career counselors when advising clients regarding personality-based career decisions.

INTRODUCTION

As businesses seek higher levels of competitiveness and productivity, the questions of motivation and engagement of an increasingly diverse workforce must be considered. Along with diversity in age and ethnicity, gender diversity has long been pursued by companies and studied by researchers. In addition to lingering disparities in compensation and access to leadership positions, men and women experience differences in role access and demands for work-life balance. While role segregation may be partly attributable to discrimination, there is a body of evidence that personality differences play a role in the different choices individuals make regarding the pursuit of a particular job or career. While personality trait scores may vary on average across genders, gender-based role segregation may further be impacted by distinctions in the way that personality and job choice are related in men and women. This study explores the relationship between personality traits and relative importance of certain aspects or attributes of a job or career and takes a specific look at how those relationships may differ by gender.

LITERATURE REVIEW

The body of research related to the experience of women in the workforce is extensive and growing. According to a detailed estimate by Eagly and Heilman (2016), there have been some 1150 research articles published that have looked at issues of gender in conjunction with leadership or management, just between 2010 and 2016 (ibid, p.349). The volume of published articles in this seven year period is more than half the number observed in the prior *forty* years. Gender differences have been studied, in recent years, in a wide variety of career-related outcomes including: leadership barriers (e.g. Diehl and Dzubinski, 2016), retention and promotion (e.g. Taneja et al., 2012), career capital (e.g. Fitzsimmons and Callan, 2016), work engagement (e.g. Banihani et al., 2013) and role stereotypes (e.g. Berkery et al.,

2013). The masculine and feminine nature of specific careers and their attractiveness to subjects with varying intensity levels of masculine and feminine traits have been studied (e.g. Dinella et al., 2014). Role congruity theory has proposed that gender-based career choices may be a means to fulfillment of broader societal roles (e.g. Diekman & Eagly, 2008) and has been used to explore the gender-influenced relationship between level of interest in STEM careers and the strength of endorsement of communal goals (Diekman et al., 2010).

Personality impact on career

Several decades ago, Holland (1966) studied the structure of career choice and he and others have since established associations between vocational characteristics and personality (e.g. Holland, 1985; Nordvik, 1996; Bozionelos, 2004), even as early as the pre-career educational stage (Boone, van Olffen & Roijakkers, 2004). These relationships have been investigated using several personality assessment instruments including the Hogan Personality Inventory (Hogan and Hogan, 1995), the Myers-Briggs Type Indicator (Myers & McCaulley, 1985), the Career Direct Personality Inventory (CDPI) (Toth et al., 1998), and the NEO-PI (Costa & McCrae, 1985), among others. Most of these personality instruments emerged from clinical psychology applications; however the Hogan inventory and the CDPI are among those designed specifically for career counseling (Toth et al., 1998).

In a recent study of upper-level accounting students, Bell et al. (2016) constructed two business-related personality traits, using factor analysis: high-entrepreneurial versus low-entrepreneurial and high-analytical versus low-analytical. The authors found significant relationships between these personality traits and measured importance of several job characteristics: nature of work, work environment, long-term growth opportunities, job security and salary (marginal significance).

Gender impact on career

When considering job values, Halaby (2003) found that men preferentially tended towards "entrepreneurial" values of High Pay, Esteem, Discretion, Autonomy and Variety, relative to the "bureaucratic" values of Pension, Job Security, Job Training and Cleanliness. Women in that study showed the opposite tendency. Halaby's theory links the entrepreneurial versus bureaucratic "decision calculus" to a personal risk-reward equilibrium point, a characteristic that, while influenced by many external factors, is at least conceptually related to certain personality factors (e.g. Adventurousness on the CDPI and Perceiving on the MBTI).

Focusing on perceived rewards, Marini et al. (1996) observed that female high school seniors placed more importance on intrinsic, altruistic and social rewards than did their male counterparts. This effect was found not to be caused by differences in intended future careers, but to persist even between males and females with similar job aspirations, indicating sociological underpinnings that emerge at an early age. The largest difference was exhibited in the value ascribed to altruistic rewards, where females attached greater importance, than did their male counterparts, to jobs that presented the opportunity to be helpful to others.

Ayala and Oshrit (2008) looked at the impact of culture and gender on subjects' choice of careers in management. Among the theories that they considered as relevant to their study was evolutionary theory. They infer from this theory that "men tend to place themselves in hierarchies, whereas women tend to be more interested in cooperation, connections and networks" (ibid, p. 308). Their study of 747 MBA students found that women, to a slightly greater extent than men, chose careers in management as a means to enhance social prestige and value in the job market. These effects were significant, but less so than the cultural effects observed in that study. The previously mentioned study by Bell et al. (2016) looked (in addition to personality factors) at the impact of gender on relative importance of job characteristics. The researchers found that female students placed more importance on job benefits and that female students with higher GPA scores additionally placed more importance on security and the nature of the work entailed.

Gender – Personality interactions

From as early as a few decades ago, research results have indicated that the relationships between personality and career motivations may not be entirely universal, but that males and females may differ from each other in some of the critical constructs of these relationships. For example, it has been proposed that values and identity in women are relationship-focused and are governed more by a sense of "connectedness" than one of "separateness" (Jordan et al., 1991). Rees et al., (2007) established an empirical relationship between "connectedness" and Holland's Social vocational scale, among a sample of 123 women. In a meta-study that reflected findings from over 500,000 participants, Su et al. (2009) found significant differences in the ways men and women connect to career-related interests, including the association reflected in their study's title: "Men and Things, Women and People…". They find that "Vocational interests seem to be an exception to the findings [such as Hyde, 2005] that sex differences are small to nonexistent on most psychological variables" (p. 873).

Korpershoek et al. (2012) studied the selection of fields of study among Dutch secondary school students and found significant interactions between personality and gender factors in their impact on study choice. Particularly, they found that in choosing between study in the fields of science and culture, the impact of the Autonomy personality trait was different for boys than for girls. Additionally, they observed that the presence of the Extroversion personality trait had an attenuating effect on the strength of the observed relationship between gender and choices of math and science fields. In a study on the results of a large international survey, Lippa (2010) found a negative relationship between the gender difference in the Agreeableness personality trait and the degree of masculinity or femininity ascribed to a standard set of occupations (ibid, p. 632). The implication, from the direction of the relationship, is that Agreeableness has an attenuating effect on the gender bias towards or away from certain occupations.

Given the evidence, from recent studies, of the impact of interactions between gender and personality on the opinions of occupations and on choices among careers, it is worthwhile to look at the underlying characteristics or attributes of a job or a career that may be more or less attractive to individuals with a view to identifying any personality determinants of that attraction and any gender differences that may exist.

This study attempts to do so by investigating the relationships between relative priorities given to career attributes and direct personality measures. Additionally, we look for differences between males and females in these relationships between personality and career attribute priority. Based on the results of these previous studies we offer the following hypotheses:

> **H_1**: *Statistically significant relationships will exist between career attribute priorities and the measured personality traits*.

> **H_2**: *There will be a difference between the personality-career attribute relationships exhibited by male and female subjects*.

METHODOLOGY

Sample and Data Collection

A sample of 790 individuals was surveyed for this study, consisting of employees from a number of large companies in the Southeastern U.S. as well as college students at a number of colleges in the same geographic area. Data was collected in the course of a series of career development programs. Ninety-four responses were deemed incomplete and were therefore eliminated from the study. Of the remaining 696 observations, 437 (62.8%) were from male subjects and 259 (37.2%) were from female subjects. The personality and career attribute data was gathered using two separate instruments, the RightPath6 personality profile and the Work Values Inventory instrument respectively.

Instruments

The RightPath6 (RP6) profile evolved from the Career Direct Personality Inventory (Toth, et al., 1995), and has been used extensively in career counseling. The RP6 profile, measures personality on sixteen sub-scales that load on to six major scales: Adventurousness, Compassion, Conscientiousness, Dominance, Extroversion and Innovation. These are assessed by analysis of a series of forced-choice rankings of descriptive terms from presented lists. Resulting scores are normalized around a mean of 50 points, with a standard deviation of 10 points. The RP6 has been tested for validity and reliability as described elsewhere (RightPath Resources, 2002). Results included test-retest correlations averaging 0.860 and Chronbach's alpha values for internal consistency ranging from 0.823 to 0.937 across the six scales.

The RightPath6 scales are related to the sixteen sub-factor scales as follows:

Adventurousness (as opposed to Cautiousness) is linked to the sub-factors Daring and Ambitious.

Compassion (as opposed to Detachment) is linked to the Sympathetic, Supportive and Tolerant sub-factors.

Conscientiousness (as opposed to Unstructuredness) is linked to Precision, Organization and Achievement.

Dominance (as opposed to Compliance) is associated with Assertiveness, Independence and Bluntness.

Extroversion (as opposed to Introversion) has Enthusiastic, Social and Verbal components.

Lastly, Innovation (Abstract, as opposed to Concrete Thinking) is linked to Imagination and Resourcefulness.

The Work Values Inventory consists of a list of eight career attributes. These are Career Progression, Opportunity to Help Others Grow and Develop, High Achievement, High Income, High Leadership Position, Intellectual Development, Prominence (to be known in field) and Security and Benefits. Subjects were required to rank the eight items in order of priority in their evaluation of a career or job opportunity. Responses were inverted from raw ranking scores (low scores implying high priority) so that high scores would correlate with high relative importance of each item. As a relative-ranking assessment, the scores across the eight items tend to be negatively correlated as a high score on any item is only obtained at the cost of lower scores on other items. This tends to complicate bivariate correlation analysis, but is somewhat mitigated by employment of multivariate analytical techniques (such as canonical correlation used in this study), where items load together onto factors or correlates.

Analytic Approach

The data were analyzed in IBM SPSS, including mean difference tests between gender partitions and canonical correlation analyses. The personality and career attribute scores for the entire data set were entered as inputs and outputs in a canonical correlation routine. Wilk's λ values and Scree plots were used to determine the significance of the canonical correlates. Each significant correlate indicates a relationship that exists between various inputs and outputs depending on the canonical loadings for that correlate. This process was repeated for each gender partition, to investigate any differences in the factors that load onto the canonical correlates.

RESULTS

Descriptive Statistics

Table 1 presents descriptive statistics on the six major RP6 personality factors and the eight career attribute items from the Work Values Inventory. These are shown for the entire sample as well as for the male and female partitions. Where significant differences exist between the partition means, these are indicated in the table. In general, the RP6 personality scores for this sample remained statistically equal in magnitude to the anticipated global mean of 50 on each of the six scales. The exceptions were the sample means for Adventurousness and Compassion which yielded Cohen's d values of 0.49 indicating moderate effect size (as in Cronk, 2006, p105). Four of the six personality scales, however, did show significant

mean differences across the gender partitions. Male respondents scored higher on Adventurousness than females (t = 3.145, p=.000, Cohen's d = .369). Males also scored higher on Innovation than females (t = 5.019, p=.000, Cohen's d = .394). Females, on the other hand, had higher Compassion scores than males (t = 4.817, p=.002, Cohen's d = .246), and higher scores for Extroversion (t = 3.255, p=.001, Cohen's d = .256) than males.

TABLE 1
RIGHTPATH6 AND WORK VALUES INVENTORY SCALE SCORES BY GENDER

	Overall (n=696)		Males (n=437)		Females (n=259)	
Scale	Mean	SD	Mean	SD	Mean	SD
RightPath6						
Adventurousness***	54.52	9.25	55.77	9.42	52.41	8.57
Compassion**	45.00	10.15	44.08	10.10	46.56	10.08
Conscientiousness	48.88	9.70	48.64	10.23	49.30	8.74
Dominance	51.35	9.86	51.17	9.66	51.64	10.20
Extroversion**	50.40	10.24	49.43	10.17	52.03	10.17
Innovation***	52.55	9.70	53.95	9.60	50.19	9.44
Work Values Inventory						
Career Progress	5.87	1.96	5.86	2.01	5.89	1.87
Help Others	4.06	2.34	3.94	2.30	4.28	2.38
High Achievement	5.90	1.84	5.92	1.89	5.86	1.75
High Income**	4.91	2.14	5.10	2.11	4.59	2.17
High Leadership***	3.68	1.96	3.89	1.93	3.32	1.96
Intellectual Development*	5.04	1.98	4.89	1.97	5.29	1.97
Prominence	2.73	1.93	2.70	1.96	2.78	1.89
Security & Benefits	3.81	2.13	3.70	2.09	3.99	2.20

Significant mean differences by gender: * p < .01. ** p < .005. *** p < .001.

The order of priority among the various career attributes can be observed in the order of the mean scores. From highest to lowest priority, respondents were motivated in their career decision towards High Achievement, Career Progression, Intellectual Development, High Income, Help Others Grow and Develop, Security and Benefits, High Leadership and Prominence in Field. There was also a gender bias observed in some of the career attribute priorities. Males placed significantly higher priority on High Income than females (t = 3.065, p=.002, Cohen's d = .239), and placed higher priority on High Leadership than their female counterparts (t = 3.770, p=.000, Cohen's d = .294). Females placed more emphasis on opportunities for Intellectual Development in their career decisions than did males (t = 2.582, p=.010, Cohen's d = .203). These significant differences in average ranking scores across the gender partitions resulted in minor shuffling in the priority order from that stated above for the entire sample. The only change for females was that Career Progression and High Achievement swapped the top two positions. For males there were two changes in position, with High Income more important than Intellectual development, and High Leadership more important than Security and Benefits. Otherwise the general order was maintained.

Canonical Correlation

The existence of significant relationships between career attribute priority and personality were explored by canonical correlation analysis. Table 2 shows the statistics for the six resulting canonical

functions. Canonical correlation values are shown for each function, along with Wilk's λ values (and related significance parameters) and R^2 values for the canonical correlate as a measure of effect size. The first four canonical functions appear to be significant, based on their χ^2 values. However, χ^2 has a reported sensitivity to sample size, and can lead to the retention of too many factors (Lattin, Carroll and Green, 2003, p. 336). Therefore we seek additional measures to determine significance. Using the Canonical R^2 values, a Scree plot was generated (not shown to conserve space) which exhibited a sharp elbow at the third canonical function. Following convention, we therefore take the first two functions to be significant. This is corroborated by the canonical R^2 values themselves, which indicate the proportion of the variance in the linear combination of career attribute priorities that is associated with the linear combination of RP6 factors. Cohen (1988) suggests that R^2 values of 5% can be interpreted as indicating medium effect size. If we use this as a cutoff, this supports the acceptance of only canonical functions 1 and 2 as significant. The presence of significant canonical functions is supporting evidence for hypothesis H_1, indicating that significant relationships do exist between career attribute priority and the RP6 personality factors.

TABLE 2
CANONICAL CORRELATION RESULTS - ENTIRE SAMPLE

Canonical Function	Canonical Correlations	Wilk's λ	Chi-Sq	DF	Sig.	Canonical R-Squared
1	0.351	0.733	242.962	48.000	0.000	0.123
2	0.278	0.836	140.274	35.000	0.000	0.077
3	0.206	0.906	77.499	24.000	0.000	0.042
4	0.195	0.946	43.525	15.000	0.000	0.038
5	0.111	0.983	13.380	8.000	0.099	0.012
6	0.069	0.995	3.719	3.000	0.293	0.005

Looking further at the canonical loadings for each of the significant canonical functions, shown in Table 3, we find specific relationships that exist between the two sets of variables. In the table, $\chi_{1,2}$ and $\eta_{1,2}$ represent the linear functions of the personality and career attributes scales respectively. For each of the two significant canonical functions, we examine the canonical loadings to determine which of each set of variables are related in linear combination. Following Cohen's guidance again (Cohen, 1992), we take loadings of 0.500 and higher as significant. We find in function 1 that a linear combination of motivations toward Opportunity to Help Others, High Leadership and Security and Benefits are related to a linear combination of Adventurousness, Compassion and Dominance, with the displayed signs of the loadings indicating the contribution of each scale in the linear combinations. Compassion loaded negatively with respect to Adventurousness and Dominance. High Leadership loaded positively with respect to the latter two personality scales, with Opportunity to Help Others and Security and Benefits loading negatively. Function 2 indicates that the career attribute of Intellectual Development is related to the personality scale of Innovation.

To investigate potential gender-based differences in these career attribute – personality relationships, we separate the sample into male and female partitions and repeat the canonical correlation on each partition. The analysis on these single-gender partitions yielded similar results to those for the entire sample, but with some noteworthy variations as observed in Table 3. The first two functions were examined, as in the full sample case, and the same cutoff value (0.500) was used to establish significant canonical loading. In the male partition, the first two significant canonical functions captured relationships that replicated those in the entire sample, with the exception that Extroversion also loaded

onto function 2 with the opposite sign as Innovation. The R^2 values and canonical loadings were very similar in magnitude to those in the entire sample.

TABLE 3
CANONICAL LOADINGS FOR SIGNIFICANT FUNCTIONS - GENDER COMPARISON

	Entire Sample		Males Only		Females Only	
Canonical Loadings for Personality Scales						
	χ_1	χ_2	χ_1	χ_2	χ_1	χ_2
Adventurousness	0.783*	-0.413	0.749*	-0.350	0.472	0.626*
Compassion	-0.872*	0.113	-0.936*	0.011	-0.545	-0.573*
Conscientiousness	-0.140	0.290	-0.088	0.265	-0.292	-0.107
Dominance	0.516*	-0.404	0.662*	-0.185	0.906*	0.089
Extroversion	-0.236	-0.380	-0.058	-0.605*	-0.024	-0.436
Innovation	0.419	0.854*	0.192	0.854*	-0.445	0.764*
Canonical Loadings for Career Attributes						
	η_1	η_2	η_1	η_2	η_1	η_2
Career Progress	-0.192	0.139	-0.174	-0.099	-0.392	0.075
Help Others	-0.646*	-0.410	-0.668*	-0.442	0.177	-0.659*
High Achievement	0.361	-0.394	0.344	-0.252	0.507*	0.232
High Income	0.333	-0.188	0.366	-0.098	0.306	-0.033
High Leadership	0.649*	-0.363	0.693*	-0.320	0.580*	0.328
Intellectual Development	0.038	0.778*	-0.139	0.828*	-0.300	0.539*
Prominence	0.262	0.270	0.255	0.357	0.146	-0.231
Security & Benefits	-0.628*	0.203	-0.526*	0.089	-0.684*	-0.476

* significant loadings; χ (η) = linear functions of personality (career attribute) scales

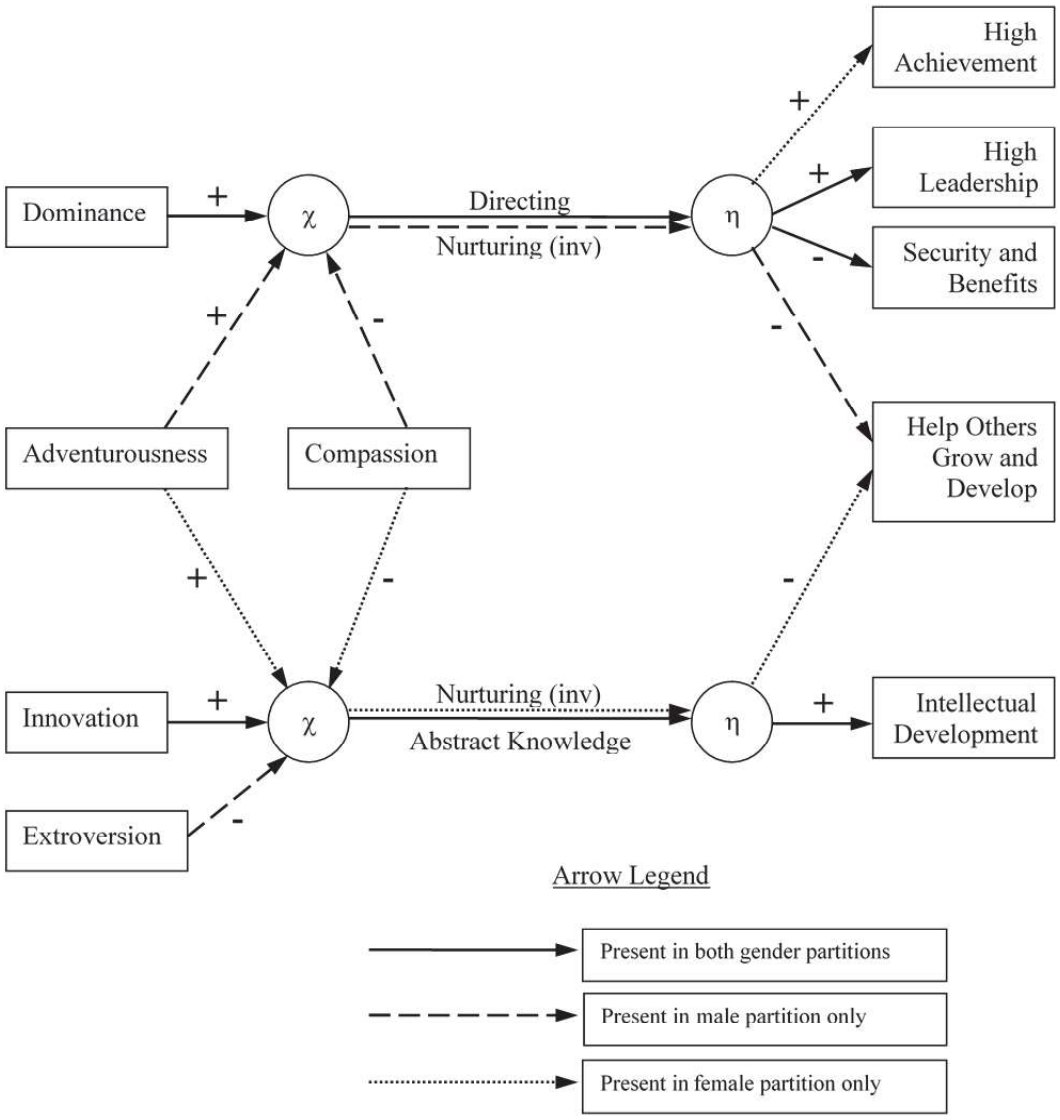
For the female partition, however, there were two differences from the results for the entire sample. Firstly, a sub-group of the factors that were loaded onto function 1 in the entire sample (and in the male partition) were associated instead with function 2. The motivation to Help Others and the personality traits of Adventurousness and Compassion (with their same relative signs) were associated with Innovation and Intellectual Development (both positive with respect to Adventurousness), rather than with Dominance, High Leadership and Security and Benefits. Secondly, High Achievement was loaded onto the remaining function 1 factors, matching the sign of Dominance and High Leadership, and opposing that of Security and Benefits. Again, the R^2 values were very similar in magnitude to those in the entire sample. The change in factor loading of the two functions did cause a shift in the relative magnitudes of the canonical loading values compared to the entire sample.

Figure 1 illustrates the digest paths for the canonical correlations between personality and career attribute priority for the two, single-gender partitions. The signs of the significant canonical loadings are shown. The difference between the significant canonical functions, across the two gender-based partitions, is supporting evidence for hypothesis H_2, indicating that personality-career attribute priority relationships will differ for males and females.

While the analysis of the entire sample and of each of the gender partitions yielded only two significant canonical functions in each case, a review of the functions in the gender partitions reveals the presence of three distinct groupings of personality and career attribute factors. These grouping are largely

consistent across both genders, but they differ in how they load together in the two canonical functions for men versus for women.

FIGURE 1
DIGEST PATHS FOR CANONICAL CORRELATIONS FOR MALE AND FEMALE GENDER PAITIONS*



* The digest path for the combined sample matched the structure of the male partition but without the loading of the Extroversion personality variable.

DISCUSSION AND IMPLICATIONS

This study demonstrates the relationship between personality scales measured by the RightPath6 profile and the relative priorities that an employee or job-seeker will place on various motivating attributes of a job or career. The major contributions of this work are 1) the identification of three distinct groups of related factors that could be taken conceptually as three separate, personality-directed, career motivation traits and 2) the observation that these motivation traits cluster differently in males than they do in females.

The first may be considered a Directing motivation trait, where high Dominance is related to a motivation towards High Leadership Position and away from Security and Benefits. The inverse relationship between the career attributes of High Leadership Position and Security and Benefits finds concept validity in the Entrepreneurial – Bureaucratic scale described in Halaby (2003). High leadership positions typically carry Esteem, Discretion and Autonomy, which are elements of the Entrepreneurial trait, while the Bureaucratic trait is characterized by motivation towards Pension and Job Security. This established job value scale is thus shown to be related to the personality sub-factors of Assertiveness, Independence and Bluntness (through the RP6 factor of Dominance).

The second motivation trait may be considered one of Nurturing, where high Compassion and low Adventurousness result in high motivation to Help Others Grow and Develop. Conversely, low Compassion and high Adventurousness result in low motivation to Help Others Grow and Develop (perhaps described as Competitiveness). The motivation to help others can be tied to the Social dimension of Holland's construct. In fact, Toth et al. (1998) found a relationship between high Compassion, low Adventurousness and high Social scores (as well as high Conventional scores). Rees et al. (2007) point out that Holland's Social dimension can be manifest in both collaborative peer relationships and support relationships. An additional manifestation is the social aspect of top-down mentoring and development of subordinates. All these aspects may be encompassed in the desire to Help Others Grow and Develop.

The third motivation trait may represent Abstract Knowledge, in which Innovation (Abstract as opposed to Concrete thinking) is directly related to the desire for Intellectual Development. New knowledge and concepts (perhaps in an abstract rather than applied manner) are pursued through the application of imagination and resourcefulness (the sub-components of the RP6 factor of Innovation). This does not appear to have a direct corollary in the job values literature, where motivation towards Intellectual Development is not typically captured. Further work needs to be done to clarify the interpretation of this trait.

Conceptually, by the nature of the associated personality and career attribute descriptors, the Directing and Nurturing motivations appear to be inversely linked. This was observed in the results of this study for the entire sample (as in canonical function 1 for both genders together). This same association was found in the male partition (along with the negative loading of Extroversion onto the Abstract Knowledge trait). In females, however, the inverse association between Nurturing and Directing is replaced by an inverse association between Nurturing and Abstract Knowledge (along with the positive loading of High Achieving onto the Directing trait). The fact that the entire sample exhibited the structure of the male partition may be due to the fact that males outnumbered females in the combined sample by a ratio of roughly 2:1.

CONCLUSIONS AND FUTURE WORK

While a variety of career motivations certainly exist, the three career motivation traits described in the section above are distinguished by a linkage to personality. Once fully investigated and validated, they could provide a valuable tool for those engaged in personality-based career counseling. Counselors should, additionally, pay particular attention to the apparent gender distinctions that these results suggest. Primarily, in females Nurturing appears to link inversely with Abstract Knowledge rather than being inversely associated with Directing (the opposite of the observed linkage in males). The fact that the Nurturing trait differs in behavior between males and females may be a manifestation of the gender difference in the structure of Holland's Social scale reported by Rees et al. (2007). The results hold

interesting implications for leaders and managers in that in males the Directing and Nurturing traits seem to be inversely wired together, whereas in females they are independent of each other. One may thus expect that a nurturing form of leadership may come more naturally to women than to men. Future work needs to be undertaken to specifically explore this question.

In females the Directing trait also has, as a component, a motivation towards High Achievement which is not apparent in males. It could be that Directing females tend to also be more driven and goal oriented than non-Directing females. Males also differ from females in that for them the Abstract Knowledge trait is additionally linked inversely with Extroversion (i.e. directly with Introversion), a relationship not observed in females in this study. Further study should be carried out with a more equally gender-balanced combined sample to see if these distinctions are born out.

In addition to providing insight to those counseling job-seekers, the nuanced insights of the gender distinctions in these relationships may prove beneficial in better understanding job satisfaction and fulfillment, which can have an impact on retention of female employees in traditionally male-dominated roles or workplaces.

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